

ABSTRACT OF THE DISCLOSURE

Cell transplantation is becoming an increasingly important method of therapy for patients. There has been no uniform methodology or instrumentality for relatively non-invasive observation of the progression or success of the cell implantation. A method is provided herein for indicating viability of transplanted cells with a medical device that supports at least one sensing function comprising:

non-destructively observing a region of a patient to where cells have been transplanted;

guiding the medical device to said region of a patient using the non-destructive observation;

positioning said medical device within said region of a patient using the non-destructive observation to assist in the positioning;

sensing a property within said region of a patient that is indicative of cell viability or inviability; and

using data from sensing said property within said region to indicate cell viability from a transplant with the region.

Magnetic Resonance Imaging is a particularly useful format for non-destructive observation of the region. As an example, cell viability may indicated by a property resulting from an event selected from the group consisting of cell activity, cell inactivity, cell growth, cell death, specific cell function, specific cell dysfunction, volumetric expansion of cell population, and volumetric decrease of cell population, while the property may be determined with monitoring by at least one technique selected from the group consisting of proton spectroscopy, monitoring of C-13 labeled glucose, monitoring by P-31 MR spectroscopy, monitoring of local F-19 labeled metabolites, monitoring of Na-23 levels, and monitoring of $^{17}\text{O}_2$ gas conversion to H_2^{17}O water.